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| **Topic 2.4: Exponential Function Manipulation** | **Transformations** |
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**Practice Problem 1**

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| The function  is given by  Which of the following is an equivalent form for  (a)  (b)  (c)  (d) |

**Practice Problem 2**

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| The function  is given by  Which of the following statements describes characteristics of the function in the *xy*-plane?  (a) The graph of  is a vertical dilation of  and is equivalent to  (b) The graph of  is a vertical dilation of  and is equivalent to  (c) The graph of  is a horizontal dilation of  and is equivalent to  (d) The graph of  is a horizontal dilation of  and is equivalent to |

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| **Practice Problem 1 Solution:**  (b)  Using the property:  you can rewrite  The function also has a vertical translation of 4 units which does not affect the change of base of the exponential expression. |
| **Practice Problem 2 Solution:**  (c) The graph of  is a horizontal dilation of  and is equivalent to  Using the property:  you can rewrite  The function represents a horizontal dilation of the function  by a factor of |

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